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ONTARIO
DEPARTMENT OF EDUCATION

PUBLIC SCHOOL MANUALS

TOPICS AND SUB-TOPICS

OF

PUBLIC AND SEPARATE SCHOOL COURSES

WITH NOTES ON METHOD

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO.

TORONTO:
Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty
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NOTE

This Manual is the property of the Board of School Trustees and is intended for the use of the teacher only, and not of the pupils.

(Name of Board of Trustees)

If a copy is desired by the teacher, it can be obtained at the Department of Education, Toronto, for ten cents.

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THE MINISTER OF EDUCATION FOR ONTARIO

PREFATORY NOTE

This manual supplements the revised Regulations, Courses of Study, and Examinations of the Public and Separate Schools. Part I contains the topics and sub-topics of some of the courses of Forms I-IV, and its contents will be republished at a later date in the revised School Manuals concerned. Part II contains the topics and sub-topics of some of the courses of Form V, with notes on method.

Department of Education,
October, 1914.

PART I

Forms I—IV

Topics and Sub-Topics

OF

Public and Separate School Courses

Forms I—IV

HISTORY

Below are the topics and sub-topics of the Course in History for Forms III and IV.

In dealing with the subject in both Forms, the teacher should keep constantly in mind the chief aims suited to this stage of the pupil's development (see Teacher's *Manual of History,* pp. 8 and 9). The most vital of these is "to create and foster a liking for historical study." The teacher should make use of simple map drawing to illustrate the subject. This is especially necessary in dealing with the history of Canada. There should be much illustration by means of maps and pictures. See Educational Pamphlet, No. 4, *Visual Aids in the Teaching of History.*

The chapter numbers in the Course for Form III are those of the chapters in *The Story of the British People* prescribed for the Form. These chapters should be carefully read; and, in Form IV, the authorized text-books should be followed for the main account. *Having regard to the time available for the Course, only the most important details should be taken up.*

FORM III

Junior Grade

Columbus—The Discovery of America (Chap. XX).
John Cabot and the New World (Chap. XXI).
Jacques Cartier (Chap. XXIII).
Raleigh and Gilbert (Chap. XXVI).
The Beginnings of Acadia (Chap. XXVII).
Champlain, the Father of New France (Chap. XXVIII).
The Pilgrim Fathers (Chap. XXIX).
The Jesuits in Canada (Chap. XXXI).
The Settlement of French Canada (Chap. XXXI).
La Salle (Chap. XXXIV).
Henry Hudson—New York and Hudson Bay (Chap. XXXV).
Frontenac (Chaps. XXXIV, XXXVII).
The Conquest of Canada—Wolfe and Montcalm, Pontiac (Chap. XLI).
The Coming of the Loyalists (Chap. XLII).
How Canada Fought for the Empire (Chap. XLIV).
William Lyon Mackenzie (Chap. XLVI).
The Great North-West—Selkirk, Mackenzie, Strathcona, Riel (Chap. XLVII).
Canada and the Empire—Royal Visitors (Chap. L).

FORM III

Senior Grade

The First Britons (Chap. I).
The Coming of the Romans (Chap. II).
A Day in Roman Britain (Chap. III).
The Coming of the English (Chap. IV).
The Coming of Christianity (Chap. V).
The Vikings (Chap. VI).
Alfred the Great (Chap. VII).
Rivals for a Throne (Chap. VIII).
The Coming of the Normans (Chap. IX).
A Norman Castle (Chap. X).
A Glance at Scotland (Chap. XI).
Henry the Second and Ireland (Chap. XII).
Richard the Lion Heart (Chap. XIII).
King John and the Great Charter (Chap. XIV).
The First Prince of Wales (Chap. XV).
Wallace and Bruce (Chap. XVI, XVII).
The Black Prince (Chap. XVIII).
The Father of the British Navy (Chap. XXII).
The New Worship (Chap. XXIV).
Francis Drake, Sea-dog (Chap. XXV).
King Charles the First (Chap. XXX).
The Rule of Cromwell (Chap. XXXII).
The King enjoys his Own again (Chap. XXXIII).
The Revolution and After (Chap. XXXVI).
The Greatest Soldier of his Time (Chap. XXXVIII).
Bonnie Prince Charlie (Chap. XXXIX).
Robert Clive, the Daring in War (Chap. XL).
The Terror of Europe (Chap. XLIII).
Waterloo (Chap. XLV).
Victoria the Good (Chaps. XLVI, XLVIII, XLIX).

FORM IV

Junior Grade

CANADIAN HISTORY

Before the British Conquest—an introductory account:

The French settlements: Extent, life of the seignior, habitant, and coureur de bois; system of trade; government at Quebec—governor, bishop, intendant; territorial claims (Chaps. VII, VIII, IX, XI).

The English settlements—Hudson's Bay Company, English colonies in New York, New England, Acadia, and Newfoundland: population, life, trade, government, territorial claims (Chaps. VIII, X, XI).

British Conquest of New France—fall of Quebec (Chap. XI).

Conspiracy of Pontiac (Chap. XII).

Quebec Act, (Chap. XII).

Canada and the American Revolution; U. E. Loyalists (Chaps. XIII, XV).

Constitutional Act—Representative Government (Chap. XIV).

Social conditions, 1763-1812 (Chap. XV).

Hudson's Bay Company (Chaps. VIII, XVI, XXI).

North-West Company (Chap. XVI).
Exploration in North-West—Hearne, Mackenzie, Fraser, Thompson (Chap. XVI).
War of 1812-14 (Chap. XVII).
Family Compact (Chap. XVII).
Clergy Reserves (Chap. XVII).
William Lyon Mackenzie (Chap. XVII).
Lord Durham, Act of Union, 1840—Responsible Government (Chap. XVIII).
Social Progress, 1812-1841 (Chap. XIX).
Settlement of the North-West—Selkirk (Chaps. XVI, XX).
Confederation of the Provinces, 1867 (Chap. XXII).
Intercolonial Railway (Chap. XXIV).
Expansion of the Dominion by addition of new provinces (Chap. XXII).
Social Progress, 1841-1867 (Chap. XXIII).
Canadian Pacific Railway (Chap. XXIV).
Riel Rebellion (Chap. XXIV).
Disputes between Canada and the United States since 1814 settled by treaty or arbitration. The Hundred Years of Peace.
Canada, at the opening of the twentieth century; transportation, industry, means of defence, education (Chap. XXV).
Ontario since Confederation; John Sandfield Macdonald, Sir Oliver Mowat, Arthur Sturgis Hardy, Sir George W. Ross, Sir James P. Whitney (Chap. XXVI).
An account of how Canada is governed, simple and concrete and as far as possible related to the experience of the pupils; Municipal Government, Provincial Government, Federal Government (Chap. XXVII).

FORM IV

Senior Grade

BRITISH HISTORY

A

A Course of about Two Months

The Early Inhabitants—The Britons.
The Coming of the Romans.
The Coming of the Saxons.
The Coming of Christianity.
Alfred the Great.
The Coming of the Normans. The Feudal System.
Richard I and the Crusaders.
John and Magna Charta.
The Scottish war of Independence.
The Hundred Years' War. Crecy, Agincourt, Joan of Arc.
The Wars of the Roses (no lists of battles or details of fighting).
Caxton and Printing.
Separation between the English Church and Rome.

B

A Course of about Eight Months

Brief account of the British Isles, territorial, political, and religious, as an introduction to the reign of Elizabeth.

Elizabeth and Mary Queen of Scots: the Spanish Armada; Drake, Hawkins, Gilbert, Raleigh, Shakespeare.

The Stuarts: "Divine Right of Kings" supported by majority of gentry and landowners (cavaliers), opposed by the commercial and trading classes and yeomen (roundheads). The Kings strove for absolute power, the Parliament for constitutional government.

James I: Union of the English and Scottish Crowns.

Charles I: Struggle between King and Parliament; Petition of Right, Ship Money, rebellion, execution of Charles.

Commonwealth: nominally a republic, really a dictatorship under Cromwell. He gave Britain a strong government at home, and made her respected abroad, and laid the foundations of Britain's foreign trade and colonial empire.

Charles II: The Restoration: Reaction in state, church, and society; King striving for absolute power; Nonconformists persecuted; society profligate in its revolt against the strictness of Puritanism; Habeas Corpus Act; Test Act; Plague and Great Fire.

James II: Revolution of 1688, the death-knell of "divine right"; Parliament supreme; Declaration of Rights.

William and Mary: Party government—Whigs and Tories; King to act by advice of his ministers; each parliament limited to three years; Bill of Rights; Act of Settlement.

Anne: Marlborough. Union between England and Scotland, 1707; the Jacobites, 1715 and 1745.

George II: Walpole, the great peace minister—home and colonial trade fostered and material wealth of the nation greatly increased; Pitt, the great war minister; territorial expansion in Canada and India—Wolfe, Clive; the Methodist Movement, Wesley.

George III: The American Revolution, 1776-83; loss of the American Colonies; Pitt; Washington; acquisition of Australia by Great Britain, 1788; legislative union of Ireland with Great Britain, 1801; Napoleonic wars: Nelson, Wellington, Aboukir, Trafalgar, and Waterloo; industrial revolution—the change from an agricultural to an industrial country.

William IV: Reform Act of 1832, a great forward movement in democratic government; abolition of slavery, 1833; railways and steamships.

Victoria: First British settlement in New Zealand, 1839; Repeal of the Corn Laws, 1846—free trade, the commercial policy of England; Elementary Education Act, 1870, education compulsory; parliamentary franchise extended—vote by ballot; Crimean war; Indian Mutiny; Egypt and the Suez Canal; Boer War—Orange Free State and South African Republic annexed; social progress.

Edward VII: Irish Land Act of 1903; pensions for aged labourers; King Edward, "the Peace-maker."

MANUAL TRAINING

The following are the topics and sub-topics of the Courses in Manual Training for Forms III and IV:

FORM III

Modelling.—Modelling of natural objects requiring greater detail—leaves and shells, fruits, common objects; simple pottery; geographical formations, simple relief maps.

Paper Cutting and Cardboard Modelling.—Use of smaller units for the formation of patterns; decoration of cardboard models with paper cuttings.

Objects in cardboard requiring more detail and careful drawing, as triangular trays, book marks, holders, furniture, stars, etc.

Thin Wood Work.—Cutting with knife to length and width simple objects such as plant labels, pencil sharpeners, modelling tools, calendar backs, etc. Simple objects made from twigs and natural wood.

Geometrical and Mechanical Drawing.—Simple geometric problems: construction of triangles, hexagons and octagons. Use of drawing board, T square and triangles. Simple plans and elevations; lettering; simple scales.

FORM IV

Modelling.—Modelling of a more difficult character than that of Form III: Natural forms, animals, objects; modelling from the cast; more advanced pottery; application of design to objects made.

Cardboard Modelling.—Objects with edges bound and surfaces covered; geometrical mats and objects based on the cube, the cylinder, the cone and the pyramid; simple bookbinding and the care of books; portfolios.

Wood Work.—Continuation of the thin woodwork of Form III; objects requiring more careful drawing and composed of two or more pieces to be sprigged together, such as boxes, brackets, broom holders, match safes, etc.

(If a Manual Training room is provided, see the work outlined for Form V Junior Grade).

Mechanical Drawing.—Construction of polygons; more advanced scale drawing; plans and elevations; lettering.

HOUSEHOLD SCIENCE

The following are the topics and sub-topics of the Courses in Household Science for Forms III and IV:

FORM III

Junior Grade

Bills of household supplies:

Furniture; bed and table linen; material for clothing.
Fuel, meat, milk, groceries.
Weekly or monthly expenses of an average household.
Comparison of home and store cost of cooked food, such as cake, bread, meat, canned fruit.

Sources of household materials:

Fuel.
Timber for building furniture.
Cotton, linen, woollen, paper, china.
Common groceries such as salt, sugar, spices, tea, coffee, cocoa, cheese, butter, cereals.
Cleansing agents such as coal-oil, gasoline, turpentine, whiting, bathbrick, soap.

Manufacture of household materials:

Cotton, linen, woollens, paper.
Salt, sugar, tea, coffee, cocoa, cheese, butter, cereals.

Kitchen and equipment:

Arrangement of a convenient kitchen.
Necessary utensils.

Hand-sewing:

The items are given under the Senior Grade.

FORM III

Senior Grade

Cleaning:

Elementary principles of cleaning.
Practice in cleaning dishes, tables, sinks, towels.

Cookery:

Table of cooking measurements.
A recipe (parts, steps in following it).
Reasons for cooking food; kinds of heat used; methods of cooking.
Practice in making simple dishes of one main ingredient.

Serving:

Setting the table.
Table service and manners.

Hand-sewing:

Review of stitch-forms, hems, and plain seams.
More advanced stitch-forms, gathering and stroking.
Bands, sewing on buttons, button-holes, bias strips and bending, tapes, French hem, mending.
Practical application in the making of such articles as work-bag, doll's sun-bonnet, apron with band, pot-holder, table napkin, flannel patch, overhanded patch, uniform for cooking.

FORM IV

Junior Grade

Cleaning:

Review of methods of cleaning taken in Form III.
Cleaning of metals.

The kitchen fire:

Requirements of a fire.
Comparative merits of fuels.
Construction and care of a practical stove.

Cookery:

Practice lessons in preparing and cooking the common foods (milk, eggs, meat, fish, fruit, vegetables).
Cooking and serving a simple breakfast and a luncheon.

Study of foods:

Uses of food to the body.
Necessary elements in food.
Composition of the common foods.

Laundry Work:

Necessary materials and the action of each.
Processes in washing white clothes.

NOTE.—These subjects are intended to be taught simply (not technically). In schools where there is no laundry equipment, the order of work may be developed in class and the practice carried on at home.

Hand-sewing:

The sub-topics are given under the Senior Grade.

FORM IV

Senior Grade

Household Sanitation:

Disposal of waste.
Principles and methods of sterilizing and disinfecting.

Cookery:

Practice lessons to review cooking common foods.
Flour (kinds, composition of white flour); flour-mixtures (kinds, methods of mixing, lightening agents).
Practice in making bread and cake.
Cooking and serving a simple home dinner at a fixed cost.

Foods:

Planning meals so as to obtain a broad balance of food elements.

Preservation of food:

Causes of decay; principles and methods of preservation.
Practice in canning.

Laundry work:

Washing of woollens (the processes).

Home nursing:

Two simple lessons to include the following:—
(*a*) The sick-room (location, size, ventilation, care).
(*b*) Care of patient's bed and diet.
(*c*) Making of mustard and simple poultices.

NOTE.—Where no equipment has been provided, a large doll and doll's bed will serve.

Hand-sewing:

More advanced work, involving a review and application of earlier work.
French seams, felled seams, flannel seams, sewing on lace, plackets, darning, mending.
Practical application of principles in the making of such articles as flannel petticoat, set of underwear for small child, dress for small child.
Stockinet darn, hemmed patch.

AGRICULTURE AND HORTICULTURE

FORMS III AND IV

Instructions

1. Schools intending to undertake for the first time or to continue the work in Agriculture and Horticulture, shall notify the Deputy Minister at as early a date as possible before December 31st on the form provided in the school register. This notice shall be signed by the chairman and the teacher.

2. Notifications received later than the beginning of the year will be accepted for the portion of the year remaining after the receipt of the notice, except when a new teacher takes charge at the New Year, when a reasonable allowance will be made; but no notifications will be accepted for participation in grants after April 15th.

3.—(1) In one-teacher schools the time allotted to the work shall amount to at least one hour a week during the year; in a graded school, the time allotted shall be proportionally increased; and a definite time, satisfactory to the Inspector or Director, must be allotted in the time-table for the work of instruction. Any time taken for the instruction of the classes before or after the regular school hours may be counted when authorized by the Board and approved by the Minister.

(2) While much of the work will be done by the pupils of Forms III and IV, the pupils in Forms I and II shall take part in the garden work at school; or they shall carry on work at home.

4. Throughout the year the teacher shall record from week to week on the special form provided in the school register the work carried on in the garden and the instruction given in the school. At the end of December these records shall be forwarded by the teacher as a report to the Minister through the local inspector.

5. Records of the instruction given in school and of the practical work carried on in home projects or in school plots shall be kept systematically by the pupils also. These records shall be available for inspection. The collections of economic plants, insects, and weed seeds, made in connection with the work, shall also be so available.

6. Teachers should arrange to see the pupils' work in the home plots at least twice during the season. The visit to the pupil's home will present opportunities for talking over matters with the parents on other matters besides Agriculture. The chief advantages that will come from supervision will lie in the encouragement given the pupil and the prevention of carelessness.

7. The Course of Study is based on the agricultural topics suggested in the Nature Study Course.

As the subject is such a wide one and the local interests throughout the Province so diversified, teachers are free to select such work as best meets the conditions.

For the Regulations and further information, see Circular 13.

SEASONAL COURSE

The following are the topics and sub-topics of the Course in Agriculture and Horticulture for Forms III and IV:

September

Plant Studies: 1. Weed study excursion; preparation of mounted collections; seed collections; identification tests; methods of eradication.

2. Pupils' selection of corn in standing crop for seed and exhibition.

School Fair: Display of Progress Club's products: home-made articles, poultry, potatoes, oat sheaves, etc., by boys, and sewing, cooking, and canning by girls; garden produce, collections, demonstration of experiments carried out at school; judging and awarding of prizes of books, bulbs, etc.

Insect Studies: The housefly—its structure, habits, life history, and suppression; estimation of damage by codling moth.

Reading: Selection and purchase of agricultural books for school and home libraries; a farmer's library; reading plans for the winter.

October

Plant Studies: 1. Collection of apples and other fruits for competition and judging; talk by local fruit grower; testing pupils' ability to recognize varieties; methods of packing and shipping.

2. Collections of injured or imperfect fruit; causes and remedies.

Farm and Orchard Work: 1. Threshing; storage of crops; model barns; silos; estimates of yields; determination of weights of bushels of grain.

2. Fall preparation of soil; implements used; problems on cost of plowing, etc.

3. Fall pruning; practice on neglected trees; cover crops.

Garden Work: Taking cuttings and plants from garden for school or home windows or wintering over; planting bulbs in school border or forcing for winter bloom; fall preparation of school garden—cleaning, manuring, and plowing.

November

Corn Fair: Collections of selected corn for competition; judging competitions; reading prize essays.

Farm Work: Wintering the farm animals—good stabling and up-to-date appliances; feeding; caring for poultry; best hen houses.

Reading: Class debates, discussions on agricultural topics.

Physical Science: Simple experiments on air.

December

Animal Studies: Breeds of farm poultry; visits to poultry or live stock shows; survey and census of local poultry industry; marketing poultry.

Reading: Reviews of subjects read up by pupils in books, papers, or bulletins.

Physical Science: Practical exercises with thermometers; use of dairy thermometer; weather records.

January

Plant Studies: Investigation of the forest-tree areas of the district with maps and census; trees represented in firewood and sawlogs; arithmetic problems on lumber, sawlogs, and woodpiles; plans for conserving local forests, reforesting waste lands, or establishing school arboretum; value of ashes and the saving of them for gardens.

Animal Studies: Breeds of farm animals with local surveys and references.

Pupils Progress Clubs: Organization for boys' work in poultry improvement (Poultry Club), and seed improvement (Corn, Oat, Barley or Potato Clubs), for girls' work in home-cooking or sewing, growing and canning tomatoes, or cultivating flowers (Tomato or Flower Clubs); winter reading in connection with these.

Physical Science: Practical lessons on air and liquid pressures; common pump, barometer, lactometer.

February

Plant Studies: 1. Germination tests of seed to be sown on local farms; structure of little plants; effects of light, heat, and moisture on growth.
2. Study of apple or other fruit-tree twigs to learn age, markings, fruit and leaf buds, etc.

Farm Crops: Study of structure of head of wheat and wheat grain; comparison with oats, barley, corn; the legumes and their tubercles.

Milk Studies: Determinatian of specific gravity; estimation of fat with Babcock Test; pupils' cow-testing work at home; cow-testing associations under Department of Agriculture, Ottawa.

Physical Science: Simple applications of electricity and steam.

March

Plant Studies: Estimation of weed-seed impurities in seeds to be sown locally; germination tests of seed; grading of seed samples under the Seed Control Act.

Farm Work: Maps of home farms showing the proposed plans of cropping; rotations; systems of farming.

Garden Work: Starting seeds in boxes, in windows or hot bed; preparing stakes, labels, tools, window boxes, hanging baskets; purchasing seeds, fertilizers, etc.; settling plans for garden experiments.

Soil Studies: A simple analysis; classification of samples of soils; water holding capacities; effect of lime on clay; soil maps of pupils' home farms; local drainage schemes and possibilities.

April

Plant Studies: Grafting and pruning—practice on neglected trees; how to restore an old orchard.

Farm Garden and Orchard Work: Implements used in spring work—their principles of construction, how and why used; spraying outfits; preparation and uses of fungicides and insecticides.

Farm Arithmetic: Problems based on actual local operations—cost of plowing, harrowing, seeding, rolling, cultivating.

Garden Work (for April or May): Preparing the ground, laying out plots, planting.

May

Plant Studies: Identification of weed seedlings in the garden; study of fruit blossoms and formation of fruit; practice in proper method of planting fruit or shade trees.

Arbor Day: Organization for school ground improvement—local bee to clean, level, plant trees and shrubbery, mend fences and outbuildings, prepare garden, improve road in front of school; sports and social.

Animal Studies: Earthworm, bee, toad, beneficial birds, with particular relation to agriculture.

Garden Work: Class instruction and exercises in thinning, mulching, and weeding; studies of seedlings' development; setting out of window boxes and hanging baskets.

June

Plant Studies: Studies of flower structures such as corn, wheat, potato, tomato; spraying for plant diseases.

Road Improvement: Principles of good road making; an ideal country road; improvement of road in front of school.

Class Excursion: Directed excursion to Agricultural College or other Experimental Farm for older pupils.

Insect Studies: Work of common injurious insects, such as cutworms, codling moth, oyster shell bark louse, cabbage butterfly, and remedies.

Garden Work: Leaving all garden work in good shape; definite arrangements for the care and protection of the garden during holidays, for observation and necessary harvesting.

PHYSICAL CULTURE

The following instructions supplement the provisions of the Courses of Study.

FORM I

The posture of the pupils while sitting and standing should be carefully supervised by the teacher. They should not be required to remain seated for more than an hour at a time, and continued rigidity of posture at their seats should not be expected. At least every hour suitable exercises should be provided, or the pupils may be allowed simply to stand at ease for a few minutes in the aisles.

FORM II

Attention should continue to be given to the pupils' posture. Special care should be taken that the back is not rounded or the abdomen allowed to protrude.

Elementary mat exercises, such as Hopping, Jumping, Jumping with quarter and half turns will vary the work and deepen the breathing and strengthen the action of the heart.

FORM III

Attention should still be given to the posture of the body. Bending over desks while writing or drawing is liable to produce a round back and round shoulders, with a flat chest.

As the pupils—especially the girls—are growing very rapidly at this stage, it is essential that exercises should be provided insuring width and depth of development. The Stretching Exercises from the authorized Syllabus of Exercises for Schools are especially suitable; also Exercises I and II of the Elementary Wand Drill, the Shoulder Roll from the Dumb Bell Drill, and Exercises in hanging by the arms from a horizontal ladder or bar, Figs. XXXIV, XXXV, and XXXVIII of Barton's *Physical Training*.

When the weather permits, games should be taken up, such as Volley ball, and Indoor Base-ball. Basket-ball is an excellent exercise, but the number engaged in one game is limited. Accordingly, games are preferable in which the entire class can take part; such as Follow-the-leader, Rope tag, Tag ball, etc.

FORM IV

As the percentage of the pupils with round backs and flat chests is liable to increase greatly in Forms III and IV, unless due means of prevention are taken, the teacher should take great care that the pupils sit erect with the small of the back supported by the back of the seat. In standing, the military position, if not exaggerated, is suitable.

All exercises involving hanging by the arms are excellent for securing the due erectness of the body and ensuring the proper position and relation of its organs.

When weather permits, the following out-door exercises and games should be taken up:

For boys: Basket-ball, Indoor Base-ball, Volley ball, Athletic exercises, Tag ball, Follow-the-leader, Hang tag, etc.

For girls: Basket-ball, Indoor Base-ball, Volley ball, Tag ball, Hang tag, etc.

For a list of Reference Books, see p. 47.

PART II

Form V

Topics and Sub-Topics

OF

Public and Separate School Courses

Form V

HISTORY

BRITISH AND CANADIAN HISTORY

Lower School

The following are the topics and sub-topics of the Courses in British and Canadian History for Form V:

CANADIAN HISTORY

The Indians: the chief tribes.

Early discoveries: the Cabots, Cartier.

The career of Champlain, 1603-35, chief events.

The Jesuit Missions.

The Heroes of the Long Sault.

Establishment of Royal Government under Laval, Courcelle, Talon.

Chief events in the career of Frontenac in Canada.

Explorations: founding of the Hudson's Bay Co., Radisson; Marquette and Joliet; La Salle; Vérendrye and his sons.

Social conditions during the French Period, as outlined, for example, in the Public School History of Canada.

The Seven Years' War: preparations, chief events, results; Wolfe and Montcalm.

Establishment of British Rule: military Government, establishment of Civil Government (the terms of the Proclamation not required).

The Quebec Act: reasons for passing the Act, terms.

The American Revolutionary War: causes, attack on Canada, independence of the United States. Attitude of French Canadians.

The United Empire Loyalists.

The Constitutional Act: reasons for passing the Act, terms.

Simcoe, first Provincial Parliaments at Newark and York.

The English Fur Companies, 1783-1861 (very briefly): rivalry in trade; founding of the Selkirk settlement; attempts to destroy the settlement; Union of the Companies; results of Simpson's administration.

Explorations: Hearne, Mackenzie, and Fraser.

War of 1812-14.

The struggle for Responsible Government (very briefly). The object is simply to make plain the meaning of the term "Responsible Government," the causes of the struggle, the demands of the Reformers, and the characters and views of such men as Bishop Strachan, Sir Francis Bond-Head, Hon. Chief-justice Robinson, Mackenzie, Papineau, and Joseph Howe.

Rebellion of 1837.

Report of Lord Durham and the Union Act.

The triumph of Responsible Government, 1841-49 (very briefly); Baldwin, Lafontaine, Elgin.

Municipal Corporation Act; Reciprocity Treaty; abolition of Seigniorial Tenure; secularization of the Clergy Reserves.

Confederation: causes, Charlottetown and Quebec Conferences, Fathers of Confederation, terms of the British North America Act.

The purchase of Rupert's Land; the Red River Rebellion.

The addition or creation of new Provinces, 1870-1905.

The work of Ryerson.

The building of the Intercolonial and Canadian Pacific Railways (very briefly).

The Saskatchewan Rebellion (in very brief outline).

The administrations of Sir John Macdonald and Alexander Mackenzie.

The Rush-Bagot Treaty, the Washington Treaty, and very briefly, the chief boundary disputes between Canada and the United States.

Names of Premiers of the Dominion of Canada and of Ontario.

Growing unity of the British Empire as shown by the Colonial and Imperial Conferences, Imperial penny postage, Canada's participation in the Boer War, etc.

Government in Canada: Dominion, Provincial, Municipal.

Social and industrial conditions under British Rule.

BRITISH HISTORY

The Early Britons.

The Roman Occupation.

The Saxon Period: Saxon Conquest, England christianized; Caedmon, Bede; Alfred, Danish invasions; the unification of England; Saxon government and customs.

The Normans, 1066-1154.

William the Conqueror: government, Feudal System.

William Rufus, Henry I, Stephen: These sovereigns are to be treated as mere connecting links.

The Angevins or Plantagenets, 1154-1399.

Henry II: Possessions, reforms, trouble with Becket (very briefly), conquest of Ireland.

Richard I: as King, as Crusader; effects of the Crusades.

John: struggle with the church; struggle with the Barons; Magna Charta, principal terms.

Henry III: revolt of Simon de Montfort.

Edward I
Edward II
Edward III
Richard II

Model Parliament, conquest of Wales, attempt to conquer Scotland, Hundred Years' War, Peasants' Revolt, Wycliffe, Chaucer.

The Houses of Lancaster and York, 1399-1485.

Henry IV
Henry V
Henry VI
Edward IV
Richard III

Growth and decline of power of Parliament; Hundred Years' War, Wars of the Roses (causes and results only).

Very brief review of social, industrial, and religious conditions of the Middle Ages as outlined, for example, in the Public School History of England: Language, p. 50; Literature, pp. 47-8, 60, 78-9, 108; Printing, p. 108; Crusades, pp. 42-3; Chivalry, pp. 62-4; Guilds, p. 94; Conditions under which people lived, pp. 93-4; Monks and Friars, p. 72; Lollards. pp. 91, 98; Commerce and Exploration, p. 116.

The Tudors, 1485-1603:

Henry VII: establishment of the absolute power of the King.

Henry VIII: Renaissance; Wolsey; separation between the English Church and Rome.

Edward VI: growth and influence of Protestantism in the English Church.

Mary I: authority of the Pope restored.

Elizabeth: the English Church under the headship of the Sovereign fully established; danger of attack from France, Spain, and Scotland; Mary Stuart; English Seamen; the Armada; Parliament begins to assert itself; material and social progress (very briefly); literature (very briefly).

The Stuarts, 1603-1714:

James I: Union of English and Scottish thrones; theory of Divine Right; trouble with Parliament; war with Spain; founding of first American Colonies.

Charles I: trouble with Parliament; absolute rule by the help of Strafford and Laud; Petition of Right; Long Parliament; Civil wars; execution of Charles.

The Commonwealth: Conquest of Ireland and Scotland; Cromwell as Lord Protector; recall of the Stuarts.

Charles II: persecution of Dissenters; intrigues with Louis XIV and war with Holland: Declaration of Indulgence, Test Act; Habeas Corpus Act.

James II: arbitrary rule; Revolution of 1688.

William III, Mary II: Bill of Rights; beginning of Party Government; war in Scotland, in Ireland, with France; Act of Settlement.

Anne: Union of England and Scotland; War of Spanish Succession; social progress and customs; chief writers of the Stuart period.

The Hanoverians, 1714 to the present:

George I: increase of the power of the Cabinet; Walpole; Stuart Rising, 1715.

George II: War of Austrian Succession; Stuart Rising in 1745; the Methodist Movement; Seven Years' War—causes, chief events, results.

George III: Treaty of Paris; John Wilkes; American Revolution; Grattan's Parliament; the Younger Pitt; British Rule in India; struggle with Napoleon; Union of Great Britain and Ireland; progress in industry; prison reform; literature (very briefly).

George IV, William IV: Social unrest; reforms; Catholic Relief Bill, Reform Bill of 1832; abolition of slavery; Factory Act of 1833; Poor Law Amendment, 1834; railways.

Victoria: Penny Postage; Chartist Agitation; repeal of the Corn Laws; Crimean War; Indian Mutiny; Reform Bills of 1867 and 1884; occupation of Egypt; Boer War; great Parliamentary leaders, such as Peel, Palmerston, Disraeli, Gladstone; Irish reforms and Home Rule; material and social progress; literature.

Edward VII: relations with foreign powers; growth and government of the British Empire; the Imperial Parliament.

GEOMETRY

The following are the topics of the Course in Geometry for the Senior Grade of Form V:

Senior Grade

Constructions

To construct a triangle with sides of given lengths.
To construct an angle equal to a given rectilineal angle.
To bisect a given angle.
To bisect a given straight line.
To draw a line perpendicular to a given line from a given point in it.
To draw a line perpendicular to a given line from a given point not in the line.
To find the locus of a point equidistant from two given lines.
To find the locus of a point equidistant from two given points.
To draw a line parallel to another, through a given point.
To divide a given line into any number of equal parts.

Theorems

The sum of the angles of any triangle is equal to two right angles.
The angles at the base of an isosceles triangle are equal, with converse.
If the three sides of one triangle be equal, respectively, to the three sides of another, the triangles are equal in all respects.
If two sides and the included angle of one triangle be equal to two sides and the included angle of another triangle, the triangles are equal in all respects.
If two angles and one side of a triangle be equal to two angles and the corresponding side of another, the triangles are equal in all respects.
If two sides and an angle opposite one of these sides be equal, respectively, in two triangles, the angles opposite the other pair of equal sides are either equal or supplemental.
The sum of the exterior angles of a polygon is four right angles.
The greater side of any triangle has the greater angle opposite it.
The greater angle of any triangle has the greater side opposite it.
If two sides of one triangle be equal respectively to two sides of another, that with the greater contained angle has the greater base, with converse.
If a transversal fall on two parallel lines, prove the relations between the angles formed, with converses.
Lines which join equal and parallel lines towards the same parts are themselves equal and parallel.
The opposite sides and angles of a parallelogram are equal and the diagonal bisects it.

Book of Reference

Elementary Plane Geometry, Inductive and Deductive. Alfred Baker, M.A. W. J. Gage & Co., Ltd., Toronto.

ELEMENTARY SCIENCE

Below are the topics and sub-topics of the Course in Elementary Science for Form V.

ZOOLOGY

Instructions

Indoor Study of Living Animals: The teacher's immediate responsibility lies in the laboratory work which embodies simple morphological studies of common forms, representing the chief animal types. These studies must, wherever possible, be supplemented or preceded by observation on living specimens. For this purpose, provision will be needed for suitable aquaria and vivaria, where the moving, breathing, and feeding of the living animals may be within ready view of the pupils. Moreover, these morphological studies are not to end in the study of form; behind the observation of the form, there must be a constant effort to interpret the meaning of the form, to show the relation of form and function. Charts and models are not to be substituted for actual specimens.

Outdoor work: This will of necessity vary with the locality and must be carried on to a very large extent without the teacher's direct supervision. But the teacher should encourage and direct the pupils, devoting a fair portion of the time of the class to discussions and reports on their independent work. Arrangements should be made for field excursions on suitable occasions. The outdoor observations should be separately recorded by the pupils.

School Museum: For progress in the natural history side of the subject, collections of specimens of the local fauna will have to be made. The school museum should be a thing of gradual growth, and great care should be taken in the selection of the material. As occasion offers, it should be provided with specimens of local fish, frogs, reptiles, birds, insects, etc.

SEASONAL COURSE

Junior Grade

September and October

Invertebrates.—Class study of a grasshopper, a spider, a centipede.

1. Comparison of a grasshopper with a cricket or cockroach, leading to the recognition of the order Orthoptera.

2. Study of a butterfly and a house-fly with observations on their habits and habitats; feeding and development of a butterfly.

Vertebrates.—Birds: Study of the external characteristics of a domestic fowl, pigeon or other common bird; instructions regarding the protection of birds by law. Comparison of the bills and feet of different types of the birds of Ontario.

For Winter: Observation of the winter birds, their feeding habits, their dangers and modes of protection.

April, May, and June

Invertebrates.—Class study of the fresh water clam and the earth-worm.

Observations on the mosquito, the prevalence of its larvae in wet places and their destruction by kerosene.

Vertebrates.—Fishes: Study of the external characteristics of a common fish. Structure of the gills and the manner of breathing.

Amphibians: Study of the external characters of a common frog; of its development from the egg. Economic importance of frogs and toads. Feeding habits of a common fish and the frog or toad.

Migration of birds: Identification of twelve common birds; sufficient description for this purpose to be recorded.

A collection of insects to be made in the first year.

Senior Grade

September and October

Invertebrates.—Study of the life-history, habits, and methods of feeding of six beneficial or injurious insects (some of each); methods of combating the attacks of the injurious forms.

Vertebrates.—Mammals: Study of the external characteristics of a cat, dog, or rabbit; chief characters of the skeleton of a mammal, such as a cat. Recognition of the common wild mammals of the locality, and observations on their habits, including winter habits.

April, May, and June

Invertebrates: Class study of the external characters of a crayfish and a wood louse (Oniscus).

Vertebrates.—Reptiles: Study of the external characters of a snake and a turtle, and observations on the habits and feeding of these animals.

Continuation of the observations on the life and habits of birds and other animals studied.

General review of the whole course, including an outline of classification as shown by the animals studied.

BOTANY

Instructions

Remarks similar to those introducing the course in Zoology will apply also to the work in Botany. In particular, it is urged upon the instructor that he should constantly stimulate the effort to interpret the meaning of the forms under observation—to discover where possible the relation between form and function.

SEASONAL COURSE

Junior Grade

September and October

The Plant as a whole: A detailed study of some common plant such as a petunia or a buttercup, taking up the structure of all the parts in succession; the study to be such as can be carried on with the aid of an ordinary lens.

Roots: Varieties of form. *Stems*: Varieties of form—erect, prostrate, climbing, twining, subterranean, aquatic. Stem-structure in dicotyledons and monocotyledons. *Foliage-leaves*: General structure, veining, margin, form and arrangement in relation to sunlight and shedding of rain. *Inflorescence*: Varieties of axial and terminal types.

Fruits: Structure and classification of the simpler fruits such as a pea or bean, shepherd's purse, poppy, apple, tomato, grape, plum, corn and maple; adaptation for the dispersal of seeds.

Preparation for Winter: Storage of reserve food in root, stem, leaf and seed; study of winter buds, their arrangement, structure and means of protection; the fall of the leaf and fruit; interpretation of leaf and scale scars on trees and shrubs.

April, May, and June

Seeds: Practical study of some of the common seeds such as the pea, bean, morning glory, representing dicotyledons; corn, wheat, representing monocotyledons; pine or spruce, representing gymnosperms; form, markings, parts and their functions, position of stored food.

Germination of seeds: Simple experiments to illustrate the more important phenomena and requirements of germination and growth, e.g., need of air, warmth and moisture; evolution of carbon dioxide; how and to what extent water is absorbed; root-hairs; root-cap; region of growth in root.

Spring Flowering Plants: Plant description; identification by means of a flora begun; relation of flower-structure to mode of pollination; meaning and significance of cross-pollination; structure and expanding of winter buds; adaptation of stem-form to habit; spines, prickles, tendrils, their forms and uses; foliage-leaves, as in the autumn work of the first year.

Senior Grade

September and October

Composites: Study of the inflorescence and flower-structure of typical composites, such as dandelion, burdock and ox-eye daisy.

Weeds: Recognition of common forms; how they spread, and how they may be controlled.

Fungi: Recognition and mode of life of mushroom, puff-ball, polypore as saprophytic forms; and apple scab, lilac mildew, wheat rust, black knot or other common type as a parasitic form.

Physiological Experiments: *Roots*: Simple experiments to illustrate root functions, e.g., absorption by osmosis, growth towards moisture. *Soils*: The presence of soluble and insoluble materials in soils; simple experiments in illustration. *Stems*: Simple experiments to illustrate stem-function, e.g., conduction of cell-sap, heliotropism, rotation of the end of the stem in twiners and climbers. *Foliage-leaves*: Simple experiments to illustrate leaf-functions, e.g., transpiration, manufacture of starch in sunlight, disappearance of starch in darkness, exhalation of a gas by green water plants, exhalation of carbon dioxide.

April, May, and June

Trees: Mode of branching and identification by leaves, bark and wood of Maple, Willow or Oak, a Conifer, Apple, and Plum or Cherry.

Description and identification of the spring flowering plants continued.

Ferns: General structure and habits of a common fern.

Review: General review and comparison of the characteristics of the larger groups of plants taken up in the course, summarizing and classifying.

A collection of plants to be made in the second year; also a collection of ten economic woods.

PHYSICS

The following are the topics and sub-topics of the Course in Physics:

Junior Grade

November to March

Introductory: Measurement in Metrical and English units of length, area, volume, and mass; structure and use of the Balance.

The Three States of Matter: Defined and explained.

Mechanics: The principle of the mechanical powers; some of their more important simple applications.

Hydrostatics: Pascal's Law, statement and verification, some of its more important applications; pressure of liquids in its relation to direction, depth, density of liquid, area pressed, and the shape of containing vessel; Archimedes' principle; specific gravity; common methods of finding specific gravities of solids and liquids.

Pneumatics: Study of the properties of a gas as exhibited in air as a type; proof that air has weight, occupies space, and exerts pressure; construction of the barometer; the relation between the volume and pressure of a gas; proof of Boyle's Law; practical application of air pressure; air-pump, common pump, siphon, the principle of air-brakes, air-tools.

Senior Grade

November to March

Heat: Nature and source of heat; experiments to illustrate the expansion of solids, liquids, and gases by heat; some practical applications of the principle of expansion; the anomalous expansion of water, its significance; meaning of temperature as compared with quantity of heat; graduation of the mercury thermometer in the centigrade and the Fahrenheit scales; meaning of latent heat, applications.

Sound: Nature and propagation of sound; pitch of sound; consonance and resonance; reflection of sound echoes.

Light: Nature and propagation of light; simple experiments illustrating the reflection and refraction of light; dispersion of light; colour of bodies.

Magnetism and Electricity: Magnets; laws of magnetic attraction and repulsion; polarity; magnetic induction; terrestrial magnetism; construction of simple voltaic cell; decomposition of water by electricity; electro-magnet; electric bell; heating and lighting effects of the current.

Note.—In both Physics and Chemistry, practice in the preparation and manipulation of apparatus should form part of the course. Where practicable, the course should also include simple operations in glass-blowing and lathe work, and in hard and soft soldering.

CHEMISTRY

The following are the topics and sub-topics of the Course in Chemistry:

Senior Grade

March

Air: Its constituents; combustion in air, and resulting changes; detection of carbon dioxide and water vapour in air; rusting of a metal such as iron in the air, and how it affects the air.

Water: Decomposition of into its elements; the obtaining of pure water, and how it differs from ordinary water.

Carbon: Its presence in plant and animal substances; combustion of carbon, and limewater test for carbon dioxide.

ART

The topics and sub-topics of the following Seasonal Course in Art for Form V is to be taken not as a detailed prescription, but rather as a guide to the inexperienced teacher as to source, material, and a natural sequence of exercises. In order to adapt the lessons to the available materials for study, nature drawing and colour study should be combined in Spring and Autumn. The Winter months lend themselves more readily to the study of the principles of perspective, object drawing and design. Memory drawing should follow the study of different objects throughout the course.

Not all the details of this course are obligatory. Neither is the list of subjects intended to be exhaustive. Enough, however, has been suggested to allow a choice to be made.

MODEL SEASONAL COURSE

Junior Grade

September and October

The first lesson should deal with (*a*) the necessary materials, (*b*) their care, (*c*) the proposed method of orderly procedure.

Study of a freehand alphabet to be used in lettering drawings.

Brush drawings in black ink or black paint of grasses (in head), bulrushes, milkweed (pods and stems), clover, daisies, golden-rod or teazel.

Brush drawings in two or more tones of one colour of a spray of leaves, of an apple spray with fruit and leaves, of onions with sprouts, or of poppy heads and stems.

Brush washes, for backgrounds, in appropriate tints of low intensity, (1) plain, (2) graded; painting upon these a spray of some simple autumn flower, such as the daisy, clover, golden-rod, etc.

Drawing in pencil, or painting in colour a simple Autumn landscape composition.

Picture study based on any of the two following:

The Gleaners, by Millet. The Gleaner, by Jules Breton.
Æsop, by Velasquez. The Last Supper, by Da Vinci.
Portrait of George Gisze, by Holbein.

November and December

Drawing the simpler type objects alone and in groups of two or three. Type objects in skeleton form should be used for the study of perspective; the solid objects for light and shade and composition.

Drawing in freehand perspective of the interior or part of the interior of the school room.

Lettering, in black ink, a motto, or a book title, well placed.

Applied design; one of the following:—

A Thanksgiving Programme, a Menu Cover, a Christmas Book Cover, a Christmas Card, a Calendar for the New Year, a Sofa Cushion Cover.

Picture study based on any two of the following:

The Sistine Madonna, by Raphael. Moses, by Michelangelo.
Mother and Child, by Brush. The Fog Warning, by Homer.
The Light of the World, by Holman Hunt.

January, February, and March

Drawing in pencil any two of the following, in light and shade, and with appropriate background:

A chalk-box with lid partly drawn, a group of books, a group of pottery, a group of garden implements or utensils.

Drawing in pencil some of the trees of Winter, such as the poplar, pine, apple, oak, maple, cedar, elm, etc.

Figure drawing: (*a*) Boys in turn posing before the class to represent:
The batter, pitcher, or catcher in baseball.
The young fisherman or the boy scout.
(*b*) Girls in turn posing before the class to represent:
Skipping, serving at tennis, sewing, or reading, etc.
Painting a simple Winter landscape from a description given by the teacher.

Making a drawing to illustrate one of the following:

(1) "Far off, three mountain tops,
Three silent pinnacles of aged snow,
Stood sunset flushed."

(2) "Walk now among the forest trees,
Saidst thou that they were stripped and bare!
Each heavy bough is bending down
With snowy leaves and flowers, the crown
Which Winter regally doth wear."

Picture study based on any two of the following:

The Armada in Sight, by Seymour Lucas. The Syndics, by Rembrandt.
Shoeing the Bay Mare, by Landseer. The Blue Boy, by Gainsborough.
1814, by Meissonier.

April, May, and June

Painting trees in leaf, preferably those drawn in Winter (alone or in groups with a simple background of fence or hillside, etc.).

Painting some of the following:

Pussy-willows, catkins, violets, Spring-beauties, periwinkles, Jack-in-the-pulpit, dog-tooth violets, hepatica plant, plant of pansies.

Painting a simple Spring landscape composition.

Making a pencil drawing or a water-colour sketch to illustrate one of the following:

(1) "Upon a pasture hill a pine tree stands,
And in the air holds up its slender hands."

(2) "We're going fishing in the creek
With brand new hook and line."

(3) "We're going hunting in the woods,
O, holidays are fine!"

(4) "Break, break, break,
At the foot of thy crags, O Sea!"

(5) "The Summer Sun is sinking low;
Only the tree-tops redden and glow;
Only the weather-cock on the spire
Of the neighbouring church is a flame of fire;
All is in shadow below."

Design for a portfolio cover for the year's work (with motif conventionalized from some flower, leaf, insect, or other natural object drawn during the year).

Picture study based on any two of the following:

Spring, by Mauve.
The Sower, by Millet.
Spring, by Daubigny.
The Escaped Cow, by Jules Dupré.
Children of Charles I., by Van Dyck.

Senior Grade

September and October

Drawing and painting a selection from the following:

Sprays of the closed blue gentian.
Rose leaves and hips.
Clumps of mushrooms or fungi.
Nasturtium leaves and flowers.
The wild carrot in flower.
A basket of apples.
A group of vegetables.
Sprays of sweet peas.
Autumn leaves.
Mullein stalks, leaves and seed.
The golden-rod.
The purple aster.
A box of onions.
A group of fruits.

Painting an Autumn landscape of local interest, such as:

"The pasture field bars" (shaded by a tree).
"On the edge of the forest."
"An Autumn hillside."
"A fence corner aglow with autumn flowers."

Making a pencil sketch to illustrate one of the following:

(1) Milking time.
(2) The old swimming hole.
(3) "I saw her singing at her work,
And o'er the sickle bending."
(4) "Now by the brook the maple leans,
With all his glory spread,
And all the sumachs on the hills
Have turned their green to red."

Picture study based on any two of the following:

The Laughing Cavalier, by Franz Hals. Captive Andromache, by Leighton.
The Frugal Meal, by Israels. Landscape with Windmill, by Ruysdael.
The Coming Storm, by George Innes.

November and December

Making a well composed group of any one of the following and expressing in a suitable medium:

Several kitchen utensils.
Two or three pieces of coloured pottery.
A hat, coat, chair, and satchel.
A candlestick or vase with a magazine or book.

Making a stencil design for a wall-paper border, or a design for a table centrepiece with motif conventionalized from some natural form drawn during the autumn.

Lettering; using the Roman, Lombardic, Monastic, or the Old English Text; design a Christmas Card.

Picture study based on any two of the following:

The Holy Night, by Correggio. The Holy Family, by Murillo.
The Finding of Christ in the Temple, by Holman Hunt.
In the Temple with the Doctors, by Hofmann.
Portrait of the Painter's Mother, by Whistler.

January, February, and March

Making a decorative composition in colour from drawings made in the autumn.

The principles of perspective applied in the drawing of

(*a*) A housetop, or
(*b*) A view along the street, or
(*c*) A pier and line light-house.

Figure drawing; any one of the following groups:

Two members of the class posing together to illustrate a tug of war, a game of marbles, batter and catcher, having a chat, etc.

Making a pencil or water colour sketch to illustrate one of the following:

(1) "There by the sheepfold, sometimes was he seen,
Sitting alone, or with his faithful dog,
Then old, beside him, lying at his feet."

(2) "This little bay, a quiet road
That holds in shelter thy abode."

Picture study based on any two of the following:

Ulysses Deriding Polyphemus, by Turner.
Napoleon on Board the Bellerophon, by Orchardson.
The Age of Innocence, by Reynolds.
The Boyhood of Raleigh, by Millais.
Return to the Farm, by Troyon.

April, May, and June

Making two sketches of daffodils, one in pencil, another in water colours.

Painting in water colours any of the following:
A spray of apple blossoms.
A spray of cherry blossoms.
A spray of wild rose blossoms.

Out-of-doors pencil sketching of any of the following:
A hen coop with hen and chickens with a background of fence and shrubbery.
A dog kennel and dog, shaded by a maple tree.
A man ploughing in a field.
A boy fishing from a boat or pier.

Illustrate any of the following:

(1) "The Sun has set long, long ago against the pearly sky,
Elm branches lift their etching up in arches slight and high."
(2) "The noisy geese that gabbled o'er the pool."
(3) "Where the quiet-coloured end of evening smiles,
Miles and miles
On the solitary pastures where our sheep
Half-asleep
Tinkle homeward thro' the twilight."

Designing a portfolio cover for the year's art work with a motif conventionalized from daffodil, apple blossom, the wild rose, or any other flower.

Picture study based on any two of the following:
The Cornfield, by Constable. The Lake, by Corot.
The Forest of Fontainbleau, by Rousseau.
A Reading from Homer, by Alma-Tadema.
The Road to Camelot, by Boughton.

Reference Books

The following will be found of great assistance to teachers throughout all the Forms:

A Guide to Pictures, by Charles H. Caffin $1.25
Doubleday, Page & Co., New York.
How to Enjoy Pictures, by M. S. Emery 1.50
The Prang Educational Co., New York.
Illustrated Exercises in Design, by E. G. Branch 1.50
The Prang Educational Co., New York.
Freehand Perspective and Sketching, by D. M. Norton 2.00
D. M. Norton, Pratt Institute, New York.
Pencil Sketching, by G. W. Koch 1.50
The Prang Educational Co., New York.
Art Education for High Schools 1.25
The Prang Educational Co., New York.
Apollo, The History of Art throughout the Ages, by S. Reinach 1.50
Charles Scribner's Sons, New York.
The School Arts Magazine, edited by H. T. Bailey, per year 2.25
The School Arts Publishing Co., Boston.

MANUAL TRAINING

The following are the topics and sub-topics of the Courses in Manual Training for Form V:

Junior Grade

Drawing.—Simple plans and elevations. Correct use of drawing board, T square, triangles, and compasses. Construction of the common geometrical figures. Simple lettering and figuring. Working drawings of objects made, either full size or to scale.

Wood Work.—Growth, structure, and identification of the woods used in the manufactures of the locality. Warping, twisting, checking; how caused and counteracted. Making of simple objects according to drawings previously prepared. Proper use of nails, screws, and glue. Use of simple joints in articles made; for example, end half lap, centre half lap, mitre, housing. Use and mechanical construction of common woodworking tools as exemplified in the making of a series of useful objects. Construction of simple school apparatus.

At least every alternate piece of work shall be kept for inspection.

Senior Grade

Drawing.—Elementary orthographic and isometric projection. Simple sections. More advanced geometrical drawing. Freehand dimensioned sketches. Inking, tracing, lettering, and blue printing. Working drawings of objects made.

Wood Work.—Growth, structure, and identification of the woods used in the locality. Tool sharpening. Common joints used in various kinds of wood work —scarfing, simple dovetail, mortise and tenon, tongue and grooved joint—their use in making objects such as boxes, drawers, tables, book-cases, etc. Fastenings with dowels, pins, cleats, wedges, etc. Calculations, from drawings and specifications, of the amount of lumber required for articles made, and the cost.

At least every alternate piece of work must be kept for inspection.

Various methods of finishing, as staining, fuming, filling, shellacing, oiling.

Wood Turning.—Explanation of the lathe, its action, speed, parts, care, and use. The gouge—correct position, turning rough cylinder. The skew chisel; reason for grinding both sides and at an angle. Concave surfaces with skew chisel. Irregular curves and spindle work. V grooves, beads and hollows. The introduction of hard wood and sand paper; exercises in turning handles. Face plate turning, chuck work, boxes with covers, powder box, napkin ring, goblet, etc.

Every piece of work shall be kept for inspection.

Forging.—The forge, the fire, the heat, the height of anvil, and its position. The ordinary tools, how to use and care for them. Hammer, sledge, chisel, fuller, and swage. Drawing, forming, upsetting, bending, and twisting iron, stamping and forge-blacking the finished piece; exercises of simple design and construction, as gate hook, turning eye and hook. Scarfing, bending, and welding.

Every piece of work shall be kept for inspection.

Machine Shop Practice.—Simple ornamental work in brass, copper, and iron. The making of simple objects such as watch fobs, paper knives, blotter corners, trays, bowls, etc.

Simple chipping and filing. Use of measuring and marking tools. Soldering and brazing.

An elementary study of the engine lathe: its parts, adjustment and working. Proper tool angles and cutting speeds and feeds. The exercises taken should, where possible, involve completed objects.

Every piece of work shall be kept for inspection.

HOUSEHOLD SCIENCE

The following are the topics and sub-topics of the Course in Household Science for Form V:

Junior Grade

The extent of the review of the course of Form IV and the length of time spent on it must be determined by the work previously taken by the pupils, but the following should be assured:

Cleaning:

Best methods of cleaning dishes, dish-towels, sinks, wooden surfaces, steel, nickel, silver, aluminum.

Cookery:

Construction and care of a practical stove.
Practice in cooking milk, eggs, meat or fish, fruit, vegetables, cereals.
Principles involved in flour mixtures.
Principles involved in the preservation of food.

Foods:

Food elements in milk, eggs, meat or fish, fruit, vegetables, seeds.
Planning simple home meals.

The House:

This subject is taken more to form new standpoints of thought than to give definite knowledge. It is intended that two or three lessons shall, in a very general way, cover the following points:

Site (soil, sun exposure, environment).

Plan (material, number, size and relative position of rooms).

Lighting (candles, coal-oil, gas, electricity, considered from standpoints of lighting-power, heat, vitiation of air, care and cost).

Heating (fire-places, stoves, hot-air and hot-water furnaces considered and compared).

Ventilating (sources of house-air impurities, purpose of ventilation, simple home methods).

Sanitation (principles involved in the sanitary care of the house and premises).

Furnishing (material, form, colour, care required when in use).

Home nursing:

Review of the Course for Form IV of the Public Schools.
The Course may be extended if time permit.

NOTE.—Where no equipment is provided a doll's bed may serve.

Laundry work:

Necessary materials (water, alkalies, soap, blueing, starch), and the action of each.

Processes in the washing of white clothes, coloured clothes, woollens.

NOTE.—The above subjects are intended to be taught simply (not technically). In schools where there is no laundry equipment, the order of work may be developed in class and the practice carried out at home.

Sewing:

Review and extension of the course of Form IV, as far as the condition of the pupils' knowledge necessitates, using finer materials.

Household linen: making towels and sheets, hemming table-cloths.

Underclothes, a simple dress or kimona or shirt-waist (machine or hand-made). Use of the machine optional.

Senior Grade

Cookery, Foods:

Review of the Junior course and its extension to more advanced cookery.

NOTE.—In the advanced cookery, the dishes should be chosen according to the demands of the home life of the pupils.

Marketing:

Seasons for domestic and well-known imported foods.

Current prices of food, with practice in buying.

NOTE.—If possible, markets and shops should be visited, and pupils given the responsibility of buying home and school supplies.

Entertaining:

Writing invitations and replies.

Planning and preparation for guests.

Duties of hostess and guests.

NOTE.—In school, one theoretical and one practical lesson will be sufficient for this. Additional practice may be obtained in entertaining at home.

Household accounts:

Systematic spending of the income.

Keeping account of household expenses.

Sewing:

Advanced stitches applied to small garments.

Hemmed patch, fine mending.

Instruction in the use of patterns.

Cutting out and making simple garments.

Threading, running, oiling and cleaning of sewing machines, use of attachments—optional.

AGRICULTURE AND HORTICULTURE

Special Course

For Form V in rural or village Public or Separate Schools, which give instruction in Agriculture and Horticulture, the Course of Study scheduled herein for Forms III and IV may be used under the same regulations for the pupils of Form V, or suitable topics may be selected from the course for Forms III and IV and the special course for Form V given below.

Where, however, the subject of Agriculture and Horticulture is taken at the examinations for the Junior or the Senior Diploma, the Course of Study shall be as below, with such necessary modifications thereof as may be approved by the Director.

Instructions

1. Schools intending to undertake for the first time or to continue the work in Agriculture and Horticulture in Form V and thus qualify for the entire annual grants, must notify the Deputy Minister of Education at as early a date as possible before December 31st. This notice shall be signed by the Chairman of the Board as well as the Principal.

2. (*a*) The work shall not be undertaken unless (i) the work in Agriculture and Horticulture is carried out in Forms III and IV, and (ii) there are at least six pupils in regular attendance in the class of each year.

NOTE.—While only six pupils are required in order to commence the work, it is very desirable that as many as possible of the pupils of the classes concerned should take it up. Principals and Boards of Trustees are urged to use their influence to this end, particularly in the case of pupils who might profitably take up the work.

(*b*) The instruction shall be given by a teacher who holds an Intermediate certificate in Agriculture and Horticulture.

3. The time allotted to the work shall amount to at least two hours a week during the year for the class of each year, under the personal supervision of and instruction by the teacher: a definite time must be allotted to the work of instruction, satisfactory to the Director. Any time taken for the instruction of the classes before or after the regular school hours or on Saturdays may be counted when authorized by the Board.

4. It is not necessary that the pupil should carry on the practical work at his own home. In some cases he may arrange to undertake some line of work in a neighbour's field or garden, for which he may accept payment; or he may carry out the work in one of the experimental plots at the school. Neither is it necessary that the pupil should perform all the work alone; but where labour is hired or assistance given, this should be duly acknowledged in the records and considered in calculations.

5. The work to be undertaken by the pupils as home projects should be considered and selected early in the course so that there may be sufficient time for reading up on the subject and maturing plans. In assisting a pupil to select a project, his age and home interests should all be considered. The aim should be to choose some project which can in all probability be carried through successfully. The pupils in each class should be restricted to a limited number of undertakings, and groups of pupils should work at some common projects. The work may be carried

out through the organization of a *School Progress Club*, in which case the number of projects will be best limited to a very few. A large number of projects have been outlined in Circular 13 (1), but only a few should be undertaken by a class in one year. The suggestions also show what might be chosen for the experimental and demonstration plots on the school grounds. Some of the simpler projects or those requiring only a short period in which to carry them through might be supplemented by others. Generally speaking, the project which involves careful attention through a period of some length should yield the largest educational returns.

6. Throughout the year the teacher shall record from week to week on a special form to be provided by the Department of Education the instruction given in the school, and the practical work carried on in connection therewith. At the end of December these records shall be forwarded by the teacher as a report to the Minister of Education.

7. (*a*) Records of the instruction given in school and the practical work carried on in home projects or in school plots shall be kept systematically by the pupils also. These records shall be available for inspection.

(*b*) The collections of economic plants, insects, and weed seeds, made in connection with the work, shall also be available for inspection.

(*c*) In projects that have a commercial side to them, the records should show the time spent on the work, and the value of the products.

(*d*) The records should be kept in some uniform system, preferably in a loose leaf note-book.

8. For guidance in carrying out the Course the teacher should apply to the Director of Elementary Agricultural Education, Department of Education, Toronto, and for the circulars dealing with the details to the Deputy Minister of Education. *For further information,* see Circular 13 (1).

SEASONAL COURSE

9. The following are the Courses of Study. Subject to the approval of the Director, necessary modifications may be made to suit local conditions.

FIRST YEAR

September

Physics: Measurements of fields and surveys for drainage; needs, value and method of drainage.

Gardening: Selection, purchase and outdoor planting of bulbs; methods of potting and forcing bulbs for winter bloom.

October

Plant Studies: Field studies of weeds; habit of growth and seed distribution; methods of eradication.

Fruit Growing: Fall manangement of orchard, pruning and cultivation; methods and systems of fruit packing; work of co-operative fruit associations; law relating to fruit marking, etc.

Beekeeping: Management of bees in fall and winter.

November

Poultry: Housing, feeding and management of poultry in winter; fattening and marketing; breeds.

Agricultural Arithmetic: Estimating of holding capacities of mows, bins, wagon boxes, silos, cisterns, wells, troughs, barrels, milk utensils; estimates of weights of hay loads, stacks, manure piles; estimate of sand, cement, lime, brick, stone or lumber required in building barns, sheds, silos, etc.

Horticulture: Cutting scions from fruit trees to store for root-grafting in winter. Planting apple seeds for production of seedlings.

December

Chemistry: Simple study of plant substances, such as determination of moisture, carbon, ash, starch, and gluten; simple studies of soils, insecticides, fungicides, and common substances used on the farm.

School Meeting: Public meeting at school at which reports on work done will be given and prizes distributed.

January

School Progress Club: Organization and plans for home project work; arrangements for preliminary reading, recording, and supervising work.

Dairying: Milk testing with Babcock tester; care of milk, and pasteurization; use of lactometer; individual cow records and herd improvement; care of dairy herd; construction of dairy stables.

February

Botany: Determination of weed seed impurities in clover seed, etc.; germination tests of farm and garden seeds; Seed Control Act; methods of combating weeds.

March

Soil Studies: Simple physical analyses of different classes; comparisons by weight; determination of air and water capacities, capillarity; effects of frost, lime and humus on clay.

Gardening: Preparation, care and uses of hot bed and cold frame; methods of growing potatoes, onions, rhubarb, lettuce, cabbage, tomatoes, etc., for early crops; small fruit culture; methods of growing strawberries, raspberries, currants, grapes, etc.

April

Poultry: Incubation, brooding and rearing of chicks; management of poultry in summer.

Gardening: Beautifying of home surroundings; plans for home gardens; preparation of soil; selection of varieties; planting tables; care of growing plants.

May

Garden Work: Preparation and planting of experimental and demonstration plots in school garden; work in home gardens.

Beekeeping: Colony studies to learn organization, life histories and work of bees; construction of hives; methods of handling.

Botany: Study of flowers of fruit trees, the setting and development of fruit; natural and artificial fertilization; flowers and seed-development of forest and shade trees.

June

Insects: Recognition, life histories, work and remedies for insects injurious to orchard and garden; spraying mixtures and application.

Botany: Study of economic plants, such as grasses, ornamental shrubbery, garden flowers.

Crop Improvement: Plans for selecting choicest seed of grains, vegetables or flowers for next year's growing; work of Canadian Seed Growers' Association.

July and August

Supervision of Practical Work: Reports on care and management of school experimental plots and home projects of pupils.

SECOND YEAR

September

Gardening: Storing vegetables, fruits and house plants for winter; methods of winter forcing of rhubarb, swiss chard, etc.

Bacteriology: Moulds and bacteria in relation to canning and preserving; methods of canning. Work of bacteria in soil; legume bacteria.

October

School Exhibit: Exhibition of pupils' and school's work at school or local fair.

Horticulture: Preparation for winter of tender climbing plants, shrubs and flowers: lifting, dividing and replanting perennials.

Home Projects: Reports on home gardening projects and summarizing results.

November

Farm Animals: Breeds of cows, horses, sheep and swine; practice in using score cards, telling of age of horses by teeth; care and management of farm animals; construction of stables.

December

Rural Economics: Laws relating to agriculture; organization for advancing agriculture; co-operative associations; value of good roads; rural advancement, etc.

January

Dairying: Simple analysis of milk to show albumin, casein and sugar; composition and value of whey and buttermilk; experiments to show effects of bacterial or mould contamination; construction, care and advantages of cream separator; manufacture of butter and cheese; dairy manufacturing; visit to creamery or evaporator.

February

Farm Crops: Kinds of farming and the best kinds for the neighbourhood; crops best suited to locality and best varieties of grains; methods of crop improvement; systems of rotations and values; plans for model farms.

March

Physics: Principles of farm machines or appliances; simple experiments with pulleys, levers, etc.

Chemistry: Uses of manures and fertilizers; examination, identifications and simple tests for common commercial fertilizers; calculation of values and proportions in which to be mixed.

April

Fruit Growing: Selection of location and planting plans for orchards; varieties suited to local planting; orchard management and care; methods of pruning and grafting.

Agriculture: Methods of soil cultivation; best times and methods of seeding. Farm management: care of machinery, costs of manuring, soil preparation, seeding, harvesting, threshing and marketing.

May

Garden Work: Work in home gardens or school plots.
Botany: First year's work continued.
Beekeeping: First year's work continued.

June

Insects: First year's work continued.

Botany: First year's work continued with study of common plant diseases and treatment for them.

Horticulture: Methods of budding and propagation by cuttings.

July and August

Supervision of Practical Work: Reports on care and management of school experimental plots and home projects of pupils.

PHYSICAL CULTURE

Below are the topics and sub-topics of the courses in Calisthenics and Gymnastics for Form V. Where a Cadet Corps is maintained, the course therefor shall be given in accordance with the Regulations of the Department of Militia and Defence, Ottawa.

Boys:—A. Calisthenics:
(1) Dumb Bells.
(2) Wands.
(3) Land Drill—Swimming.

B. Class Room Exercises:
(1) Mat Exercises, i.e., Hops, Jumps, Jumps with turns, Jumps sideways.
(2) Athletic Dance.
(3) Relay Races with variations.

Girls:—A. Calisthenics:
(1) Dumb Bells.
(2) Wands.
(3) Indian Clubs (pupils turned sideways in aisles).
(4) Land Drill—Swimming.

B. Classroom Exercises:
(1) Basic Fancy Steps or Rhythmical Balance Exercises.
(2) Class Room Games.

NOTE.—The courses for teachers' certificates in Physical Culture now include swimming, and, where facilities are available, provision should be made for instruction in the subject.

Books of Reference

In addition to the prescribed manual, the following will be found of great assistance to teachers throughout the Forms:

Physical Training, including First Aid. Jas. W. Barton, M.D., Physical Director, University of Toronto ..... $ .75
Musson Book Co., Toronto.

Games for Playgrounds, Class-room, Home and Gymnasium. James H. Bancroft 1.50
Macmillan Co., Toronto.

At Home in the Water. Geo. H. Corsan ..... .75
Association Men Press, New York.

Handbook of Rhythmical Balance Exercises 1.50
Grannis Press, New York.

Syllabus of Physical Exercises for Public Schools ..... .25
Copp, Clark Co.

NOTES ON METHODS

The following instructions and notes on methods in the subjects of Form V will be found serviceable.

READING AND SPELLING

When the course for reading in the Junior Grade has been properly completed, a further knowledge of the subject should be secured in the prescribed practice in connection with Literature. When also the courses in Forms I-IV have been properly completed, special classes in Spelling and Writing should not be necessary. Attention to those subjects in all exercises should secure due improvement. The visual impression made in composition and extended reading courses will materially aid in the acquisition of a knowledge of the proper forms of words.

LITERATURE

1. The object of the course is the cultivation of a taste for good literature, not by minute critical study, but by reading at home and in school aloud and silently, with due attention to the meaning, standard authors whose works will quicken the imagination and present a strong element of interest. Such authors should be chiefly narrative, descriptive and dramatic.

2. In each of the two years of the course, at least four books (prose and poetry) shall be read at home or during study periods, under the teacher's supervision, in addition to the regular class work. At the beginning of each school year a short list should be made out for each Form, under a few heads, of such suitable works as may be obtained in the school, public, or other library, and each pupil should be required to read during the year at least one under each head in addition to those taken up in class. The work in literature should be systematically correlated with that in oral and written composition.

3. In English Literature too much time has hitherto been given to the minute study of the texts. A larger proportion should be given hereafter to the Supplementary Reading.

COMPOSITION

1. Actual practice in oral and written compositions should largely predominate. The main principles of composition should be learned from the criticism of the compositions, and systematized as the work proceeds.

2. For some weeks at a time the minute study of the English Literature texts might be intermitted and some of the time thus set free devoted to English Composition, in the teaching of which the Supplementary Reading might be utilized, and compositions might be written in the class under the supervision of the teacher.

GRAMMAR

The use of English grammar in teaching correct oral and written composition, though important, especially when the principles of good English can be intelligently applied, is secondary to the insight it gives into the structure of our thinking and expression. This is the phase of the teaching of the subject that deserves special attention in the Senior Grade.

HISTORY

1. The main purpose of the course is to arouse an interest in historical reading; but, at this stage, a beginning should be made in appreciating the logical connection of events. Pupils should be trained to use the school, public and other libraries for reference purposes and for supplementary reading.

2. The work in history should be systematically correlated with that in oral and written composition, and so much geography should be taken up as will secure intelligent comprehension of the topics dealt with. Compositions on historical topics, that will require supplementary reading, are an excellent means of teaching the subject.

3. Any of the authorized text-books in history may be used, at the discretion of the Principal, the teacher selecting the suitable portions; but the Public School histories of England and Canada may be taken as presenting the outlines of the courses. Where, however, the Public School histories are used, they should be supplemented as far as time will permit. See Text Book Regulations.

COMMERCIAL AND MAP GEOGRAPHY

1. The course in Commercial and Map Geography, even when studied in detail, should not deal with minute particulars; nor should the pupil be required to memorize the exact statistics, even in the case of the most important; as statistics change from time to time, round numbers will be sufficient. With such general knowledge the pupil will have sufficient for the ordinary purposes of life. When he needs special particulars, he may readily find them in books of reference.

2. Books of travel and other supplementary reading from the school or public library should be supplied; also, when practicable, exhibits of the products characteristic of the countries studied; and pictures and photographs of famous places.

PHYSICAL GEOGRAPHY

1. As far as practicable the teaching should be based on experiments, the observations during excursions, and the careful study of charts and maps. During the same excursions both Physical Geography and Elementary Science may be studied.

As far as practicable also contour maps should be used in dealing with the topics of the course.

The following laboratory manual and contour maps will be found useful:

Student's Laboratory Manual of Physical Geography—Brigham, 60c. D. Appleton & Co., New York.

Map of part of Cobalt, Miller & Knight. Free. Bureau of Mines, Toronto.

Topographical Maps: 1 inch to 1 mile series, 50 cents a copy; 1 inch 1 mile series, 60 cents a copy. Department of Militia and Defence, Ottawa. Address the Secretary, Militia Council.

Map of United States, 18 in. by 28 in., with contours, 15c. United States Geological Survey, Washington, D.C.

Topographic Map, Niagara Sheet, N.Y., 10c. United States Geological Survey, Washington, D.C.

2. The study of weathering should be preceded by an examination of the chief rocks such as granite, sandstone, limestone, and shale, etc., and the relation between the rocks and soils should be indicated. The disintegrating action of frost, air, and rain can be well studied on a field trip.

3. The work of rivers should be illustrated by a study of rills and small streams in the neighbourhood; also by a study on maps of young, mature, and old river systems.

4. Weather forecasting should be studied in connection with weather maps. Specimen copies of such maps may be obtained on application to the Director of the Meteorological Office, Toronto.

5. The study of the ocean should be based on a careful study by the pupils of maps of the Atlantic and other oceans. A chart of the main currents should be compared with a chart of the prevailing winds, and also with a rainfall chart of the world.

6. The astronomical work should be based largely on observations of the heavenly bodies and on experiments. The explanation of the phases of the moon should be attempted only after the moon has been observed daily for at least a month as to shape, time of rising, position at sunset, etc. The apparent motion of the stars and the changing relation of the planets to the stars should be observed before the relations of the members of the solar system are discussed and the heliocentric theory propounded.

7. Glacial action should be taken up in connection with the study of the glacial evidences of the district.

8. Where practicable and when time will permit the measurement of the dew point and humidity might be made by pupils; the part played by dust in producing the colours of the sky and in assisting condensation might be experimentally demonstrated.

9. Isothermal and isobaric charts of the world for winter and summer should be carefully studied. The changes during the seasons and the effect of latitude, altitude, winds, mountains, and ocean currents upon the isobars and isotherms should be explained.

10. Before taking up the natural phenomena of the air, such as clouds, dew, rain, etc., these phenomena should have been carefully observed by the pupils over an extended period; for instance, before discussing dew they should have records for over a month showing on what nights there was dew; whether the nights were cloudy or clear, still or windy; whether preceded by a warm or cold day; the direction of the wind; on what objects dew appears most abundantly, etc.

ARITHMETIC

1. The processes and problems in the commercial work shall be such as find *direct* application in ordinary life. Accuracy, rapidity, and neatness of work shall be kept in view.

2. The common business forms to be taken up are as follows: Receipts, promissory notes, drafts, orders, deposit slips, cheques, bank drafts, bills of goods, invoices, accounts, endorsement and acceptance and consequent liability.

3. In the prescribed text-book the mensuration is completed before the commercial arithmetic is begun. The teacher should, however, use his own judgment as to the order in which the different parts of the work shall be taken up.

ART

1. The purpose of the course in Art is primarily cultural. It seeks to lead the student to an appreciation of form, colour, and decorative and harmonious arrangement, having regard also to the useful. It aims to increase the joys and the comforts of life, to develop character, and to awaken the inventive and imaginative faculties of the artist or the industrial activities of the artisan.

The different parts of the courses may be taken up in whatever order the teacher prefers.

2. A list of indispensable type solids is also given under Equipment, in the Regulations. Care should be taken not to over-emphasize their value in the course. They are useful only in so far as they lead to careful observation in drawing more interesting objects.

3. In the first year, the principles of perspective should be learned inductively from observation and later the laws should be taken up.

4. Drawings should be from real objects; pictures may be studied for their cultural value and in order to secure correct methods of rendering, but they should not be copied.

5. The exercises in pose drawing may be made very interesting by allowing the pupils to take their turn, equipped with the necessary accessories.

6. Illustration lends itself to correlation with other school subjects. A wide choice of subjects should be allowed. The teachers of Literature, Composition, History, Elementary Science and Art may be mutually helpful.

7. In design, the natural forms drawn and conventionalized in the course of the year should be used as motifs.

8. The best work of each pupil should be mounted on sheets of uniform size and exhibited at convenient intervals. This work should be kept for inspection, properly labelled with the date and the name of pupil, school, and form.

9. In selecting pictures for study, regard should be had for the age and stage of advancement of the pupils. At first, pupils should be led to the interpretation of the meaning of the picture by a series of judicious questions; afterwards, matters of technique may be considered in the appreciative criticism of the best pictures of our own and other lands. The school lantern can be made of great service in picture study and in teaching the principles of Art.

10. As the power to draw rapidly and well is very valuable, the teacher should give frequent exercises in making quick pencil sketches from objects.

ELEMENTARY SCIENCE

1. The objects of the course are to train pupils in correct observation and deduction; to give, in connection with the instruction in geography, a fair knowledge of the world around them to those who will not remain at school more than a few years, and to lay the foundation for the more detailed study of each subject in the case of those who will continue the work into the higher Forms. The spirit of the Nature Study of the Public Schools should be retained, but the teacher should introduce a more systematic treatment of the subject, with such organization of the material as will lead to simple classification and generalization. The course should be correlated with Geography, Art, English Composition, Manual Training, and Household Science.

For guidance in the methodology of the Course, see the High School Manual: SUGGESTIONS FOR TEACHERS OF SCIENCE.

2. (*a*) Each pupil shall possess a good lens, and be taught how to use it. When desirable, the teacher should use the compound microscope for illustration. Approved methods of collecting and preserving botanical specimens and of keeping live animals suitable for study should be systematically followed. Much of the practical work, especially the observations, will necessarily be taken up out of doors by the pupils, under the direction of the teacher, or by the pupils conducted by the teacher.

(*b*) The courses in Physics and Chemistry shall be, as far as practicable, experimental, and the pupils should be encouraged to work at home and to prepare simple apparatus.

3. There should be an aquarium, and every school should have an arboretum and a herbarium. A museum, consisting of specimens illustrative of the courses, should also be established. The pupils should be encouraged to provide specimens from the locality.

4. No Flora or Fauna is authorized as a text-book for the pupils, but it shall be the duty of the Board to provide in the school library a sufficient supply for the pupils' use. Other works of reference shall also be provided, and the pupils should be encouraged to use them as supplementary reading, never as text-books or as substitutes for original work.

5. Drawing and systematic written description should be required throughout the courses, the work being systematically supervised by the teacher. *Notes shall not be dictated by the teacher.*

6. The Science note books should indicate that in the most important particulars the work of the course has been taken up. Until the pupil understands how to record his observations, the teacher may find it desirable to have the notes made in the class room neatly copied out afterwards; but as soon as practicable this should be discontinued, and *the records should be finally made in the class.* Moreover, while reasonable neatness must be insisted on and drawings are essential, time should not be spent in recording unimportant details or in unnecessary elaboration.

GEOMETRY

1. The special object of the course in Geometry rests in the importance of a knowledge of form and dimension, it trains pupils to attain skill in drawing, the use of instruments and accurate measurements, and through these, in inductive and deductive reasoning.

2. The course should emphasize physical accuracy, exactness in drawing lines of required length, in measuring lines that are drawn, in constructing angles of given magnitude, and in measuring angles that have been constructed. The course in Geometry retains Euclid's common notions, regarding them from modern standpoints.

No book is authorized for the pupils' use, but the teacher may refer to BAKER'S ELEMENTARY PLANE GEOMETRY—INDUCTIVE AND DEDUCTIVE.

MANUAL TRAINING

1. The Forging and the Machine-shop practice, with their associated drawing, which are now sometimes taken as part of the Manual Training course, properly form part of technical and industrial courses; but, except where comprehensive technical or industrial courses have been established, these subjects are for the present permitted by the Department as extensions of the Manual Training course.

2. If the pupil has received two years' Manual Training, approved by the inspector, Wood-turning may be taken instead of Woodwork.

3. Except by special permission of the Minister, the course in Forging may be taken only by those who have had two years in Woodworking, and that in Machine Shop Practice only by those who have previously taken Forging.

4. When the pupil has not taken up, or has taken up partially, the Manual Training of the Public School Course, such parts of the subject shall be taken up in the High School, as the teacher may deem necessary.

5. The articles made should be kept for the Inspector's examination.

LATIN AND GREEK

Throughout the courses in Latin and Greek the main objects should be accuracy of knowledge of forms and syntax, accuracy of translation into idiomatic English, and the ability to translate at sight. Attention should also be given to pronunciation and oral reading, and to the consideration of Latin and Greek words as the roots of English words.

FRENCH AND GERMAN

1. The work in French should at first be wholly without a text-book, for the training of the ear and tongue; grammar learned incidentally. Names of common objects, states and actions. Memorization of suitable selections from simple poetry. Reading anecdotes, short stories, and easy descriptions, with oral drill on the material read. After three or four months of this course the systematic study of the elementary book should be begun, the work being chiefly oral. German should

be begun in the same way the second year, but with greater apportionment of time and more rapid progress. When desirable, owing to local conditions, German may be begun first.

2. Special importance should be attached to Oral Work. Teachers should improve themselves by attending suitable summer classes.

THE COMMERCIAL SUBJECTS

1. A course in Bookkeeping as follows may be prescribed for those pupils who can attend not more than one year; other pupils should omit this course and take that prescribed for the Senior Grade.

2. The most important part of the course in Bookkeeping is contained in sets II, III, IV, (or V), VI, and XI (Part I) of the authorized text-book, or the equivalent thereof in character and amount.

In each of these sets and exercises, the transactions shall be dated according to the calendar of the year in which the set or exercise is worked out in the School. The name of the month in the text-book need not be changed.

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